

**Notice of Allowability**

Application No.

09/973,277

Examiner

Pamela E Perkins

Applicant(s)

WITVROUW ET AL.

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the filing of the amendment on 5 January 2004.
2. ☒ The allowed claim(s) is/are 1-23.
3. ☒ The drawings filed on 09 October 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All b) ☐ Some\* c) ☐ None of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.
5. ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
  - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
  - (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.
  - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)          |
| 2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                    | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____             |
| 3 <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____  | 7 <input checked="" type="checkbox"/> Examiner's Amendment/Comment                  |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
|  | 9 <input type="checkbox"/> Other  |

  
ARMIN ZARABIAN  
REGISTERED PATENT EXAMINER  
TECHNOLOGY CENTER 2800

### **DETAILED ACTION**

This office action is in response to the filing of the amendment on 5 January 2004. Claims 1-23 are pending.

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Paul Churilla on 22 January 2004.

The application has been amended as follows:

Claim 1 have been amended as follows:

1. A method for producing bulk micromachined devices for use in Microelectromechanical Systems (MEMS), comprising the steps of:  
providing a crystalline wafer with a front plane,  
processing from said wafer at least one bulk micromachined device comprising at least one elongated opening or cavity, the opening of cavity having a longitudinal axis, so that an angle is formed by said longitudinal axis and a line formed by intersection of the front plane of the wafer and a first cleavage plane, ~~said first cleavage plane being defined as a plane along which a cleavage of the wafer is likely to occur~~, wherein said longitudinal axis is not

paralleled with a second cleavage plane, ~~said second cleavage plane also being defined as a plane along which cleavage is likely to occur.~~

### ***Allowable Subject Matter***

Claims 1-23 are allowed.

### ***Reasons for Allowance***

The following is an examiner's statement of reasons for allowance: prior art does not anticipate, teach, or suggest a method for producing bulk micromachined devices for use in Microelectromechanical Systems (MEMS) where a crystalline wafer comprising a front plane having at least one elongated opening or cavity, the opening or cavity having a longitudinal axis so that an angle is formed by the longitudinal axis and a line formed by an intersection of the front plane of the wafer and a first cleavage plane, wherein the longitudinal axis is not parallel with a second cleavage plane.

For example, Liang et al. (6,281,545) disclose a method of fabricating a flash memory device that comprises a split floating gate where a oxide layer is formed on a substrate, forming a patterned sacrificial layer on the oxide layer, implanting ions into the substrate to form source and drain regions comprising lightly doped source and drain regions with a channel region formed in-between the source and drain regions, forming spacers on the sidewalls of the sacrificial layer, forming a dielectric layer on the sacrificial layer and substrate and forming a control gate on the dielectric layer. Liang et al. further disclose etching the sacrificial layer to form two floating gates over the

channel region, wherein the two floating gates are partially formed over the lightly doped source and drain regions. However, Liang et al. do not disclose, anticipate, teach, or suggest a method for producing bulk micromachined devices for use in Microeletromechanical Systems (MEMS) where a line is formed by an intersection of the front plane of the wafer and a first cleavage plane, wherein the longitudinal axis is not parallel with a second cleavage plane.

The prior art made of record in this action does not anticipate, teach, or suggest a method for producing bulk micromachined devices for use in Microeletromechanical Systems (MEMS) where a crystalline wafer comprising a front plane having at least one elongated opening or cavity, the opening or cavity having a longitudinal axis so that an angle is formed by the longitudinal axis and a line formed by an intersection of the front plane of the wafer and a first cleavage plane, wherein the longitudinal axis is not parallel with a second cleavage plane.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pamela E Perkins whose telephone number is (571)


Art Unit: 2822

272-1840. The examiner can normally be reached on Monday thru Friday, 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

PEP

  
AMIR ZARABIAN  
SUPERVISOR, PATENT EXAMINER  
TECHNICAL CENTER 100